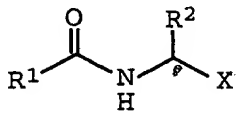
We claim:

1. A process for preparing N-acyl derivatives of the formula I,



I

in which the substituents independently of one another have the following meanings:

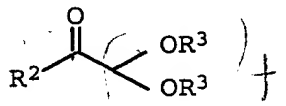
X is $CH(OR^3)_2$, $COOR^3$;

R^1 is hydrogen, C_1-C_{12}-alkyl, aryl, unsubstituted or substituted;

R^2 is hydrogen, C_1-C_{12}-alkyl, aryl, unsubstituted or substituted;

R^3 is C_1-C_{12}-alkyl,

which comprises reacting a carboxamide R^1-$CONH_2$ of the formula II with a glyoxal monoacetal derivative of the formula III,



III

in the presence of a carboxylic acid R^4-COOH of the formula IV where R^4 = C_1-C_{12}-alkyl, where the substituents R^1 to R^3 are as defined above.

2. A process as claimed in claim 1, wherein the substituents have the following meanings:

X is $COOR^3$;

R^1 is hydrogen, C_1-C_8-alkyl;

R^2 is C_1-C_8-alkyl, aryl, unsubstituted or substituted;

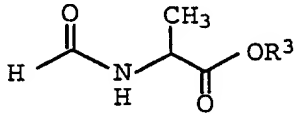
R^3 and R^4 are C_1-C_8-alkyl.

3. A process as claimed in claim 2, wherein the substituents have the following meaning:

R^1 is hydrogen;

R^2 to R^4 are C_1-C_8-alkyl.

4. A process as claimed in ~~any of claims 2 or 3~~ claim 2 for preparing N-formyl-α-aminopropionic acid esters of the formula Ia



Ia

in which the substituent R^3 is C_1-C_8-alkyl.

5. A process as claimed in claim 1, wherein the substituents have the following meanings:

X is $CH(OR^3)_2$;

R^1 is hydrogen, C_1-C_8-alkyl;

R^2 is C_1-C_8-alkyl, aryl, unsubstituted or substituted;

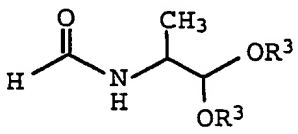
R^3 and R^4 are C_1-C_8-alkyl.

6. A process as claimed in claim 5, wherein the substituents have the following meanings:

R^1 is hydrogen;

R^2 to R^4 are C_1-C_8-alkyl.

7. A process as claimed in ~~either of claims 5 or 6~~ claim 5 for preparing N-formyl-2-aminopropionaldehyde derivatives of the formula Ib



Ib

in which the substituent R^3 is C_1-C_8-alkyl.

8. A process as claimed in ~~any of claims 2 to 4~~ claim 2, wherein the amount of the respective carboxamide R^1-$CONH_2$ and carboxylic acid R^4-COOH employed is from 250 to 800 mol%, based on the acetal of the formula II employed.

9. A process as claimed in claim 8, wherein the amount of the respective carboxamide R^1-$CONH_2$ and carboxylic acid R^4-COOH employed is from 400 to 600 mol%, based on the acetal of the formula II employed.

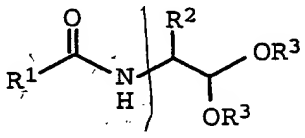
10. A process as claimed in any of claims 8 ~~or 9~~, wherein the carboxamide R^1-$CONH_2$ and the carboxylic acid R^4-COOH are employed in the reaction in a molar ratio of 1:1.

11. A process as claimed in ~~any of claims 5 to 7~~ claim 5, wherein the amount of the respective carboxamide R^1-$CONH_2$ and carboxylic acid R^4-COOH employed is from 50 to 250 mol%, based on the acetal of the formula II employed.

12. A process as claimed in claim 11, wherein the amount of the respective carboxamide R^1-$CONH_2$ and carboxylic acid R^4-COOH employed is from 100 to 200 mol%, based on the acetal of the formula II employed.

13. A process as claimed in ~~either of claims 11 or 12~~ claim 11, wherein the carboxamide R^1-$CONH_2$ and the carboxylic acid R^4-COOH are employed in the reaction in a molar ratio of 1:1.

14. A N-acyl derivative of the formula Ic,



Ic

in which the substituents independently of one another have the following meanings:

R^1 is hydrogen, C_1-C_{12}-alkyl, aryl, unsubstituted or substituted;

R^2 is hydrogen, C_1-C_{12}-alkyl, aryl, unsubstituted or substituted;

R^3 is C_1-C_{12}-alkyl.

15. A N-acyl-derivative as claimed in claim 14 in which the substituents independently of one another have the following meanings:

R^1 is hydrogen, C_1-C_8-alkyl;

R^2 and R^3 are C_1-C_8-alkyl.